2018 ARRL September VHF Contest Full Results

By Ralph "Gator" Bowen, N5RZ (wb5aar@gmail.com)

No

Enhancement? No Problem!

In spite of the rather flat conditions in the 2018 September VHF Contest, there was tremendous local activity - and a number of rovers were on to keep butts in the chair.

There was generally no propagation enhancement. Some medium distance QSOs were made via MS on 6-meters and 2-meters, but no indication of any Es openings. Of course there were some EME QSOs made by stations so equipped.

The rovers were out in force this time — 82 entrants — which contributed to some good scores and kept the fixed stations busy.

A big thanks to Jeff, K1TEO, who retired from writeup duties after a number of years of excellent articles. I have some big shoes to fill, and any input is welcome

Activity Levels

The 569 logs submitted were the most since 2009, and up by 96 from 2017, a 17% increase. This reversed a trend of declining numbers experienced in the past few years. Thanks to all for your participation! That makes all the difference when marginal conditions exist.

Total Logs Submitted by Year

Year	Number of Logs
2013	514
2014	545
2015	516
2016	504
2017	473
2018	569

Participation was significantly up in the Single Op (both High and Low Power), FM-Only and Limited Rover categories this year over last year, while there was practically no change in the other categories. There was apparently quite a bit of rain in the Northeast that would hamper rover/portable efforts in that area. Impending severe weather even forced the W2SZ multiop to QRT early. Several entrants mentioned that rain limited their UHF QSO counts.

Count by Category

SOLP	187
SOHP	132
SO3B	82
SOFM	28
LM	22
UM	15
SOP	21
Classic Rover	21
Limited Rover	51
Unlimited Rover	10
Total:	**569**

Total QSOs for 2018 were up significantly from last year – 41,500 vs. 34,687. (See chart on the next page.) QSOs on the four lower bands were way up, while on 902+ were way down. The decrease in microwave QSOs is due not only to the weather-related events in the Northeast, but to an apparent lower activity level across the country. Still, a 20% increase in total QSOs is a great thing.

Category Abbreviations

Single-Op HP/LP – SOHP/SOLP
Single-Op Portable – SOP
Single-Op 3 Bands Only – SO3B
Single-Op FM Only – SOFM
Multiop Limited/Unlimited – LM/UM
Rovers Classic/Limited/Unlimited – R/RL/RU

Band Nomenclature

In order to keep VHF+ contest tables and listings brief, the ARRL uses the following table of abbreviations and single-character designators to indicate band.

Band	Abbr	Des.	Band	Abbr	Des.
6 meters	6M	A	10 GHz	10G	I
2 meters	2M	B	24 GHz	24G	J
222 MHz	222	C	47 GHz	47G	K
432 MHz	432	D	75 GHz	75G	L
902 MHz	902	9	119 GHz	119G	M
1.2GHz	1.2G	E	142 GHz	142G	N
2.3GHz	2.3G	F	241 GHz	241G	O
3.4GHz	3.4G	G	Light	Light	P
5.7 GHz	5.7G	H			

Total QSOs by Band

Band (MHz)	# of QSOs 2018	# of QSOs 2017
50	13,649	10,305
144	13,893	11,455
222	4582	3738
432	6653	5447
902	805	962
1296	1047	1229
2304+	871	1551
Totals	**41,500**	**34,687**

FT8 and the Digital Modes

A number of operators are utilizing *WSJT-X* modes to make QSOs. MSK144 is a very effective tool for meteor scatter, especially on 6 and 2-meters. And FT8 has become very popular, both during contests and on a daily basis, with a number of folks using it exclusively.

The problem with FT8 contest/non-contest format issues continued to rear its head in September. In December, 2018, *WSJT-X* ver 2.0 was released to mitigate this issue, hopefully. It is not compatible with older versions of *WSJT-X*, and is the new standard effective January 1, 2019. Everyone needs to upgrade their software. It will be interesting to see if this allows FT8 to be more efficient.

The current Cabrillo log format does not require that digital QSOs be identified as such, so there is no way, in the log analysis, to determine exactly how many QSOs are made via the various digital modes. It would be great to somehow quantify the digital mode usage, and opportunities to do so are being explored. Any suggestions are welcome.

Single Operator Categories

The trend away from the traditional Single Op categories the past few years was reversed in the most recent running. SOLP, again the most popular category, had 187 entrants, up from 148 in 2017. SOHP entries numbered 132, up from 108, and SO3B was only slightly down to 82 from 88 last year.

Top Ten - Single Operator, Low Power

Call	*Scores*	*QSOs*	*Mults*	*Bands*
AF1T	72,390	373	114	ABCD9EFGHIJ
WB1GQR (W1SJ)	58,707	432	99	ABCD9EFG
K9MU	33,152	210	112	ABCD9
VE3DS	32,528	182	107	ABCD9EFGH
N8RA	21,052	223	76	ABCD
WA3EOQ	17,775	142	79	ABCD9E
WB2JAY	15,576	163	59	ABCD9EFG
W3EKT	14,224	156	56	ABCD9EFGHI
NØLL	10,080	97	84	ABCD
WZ8T	10,080	207	35	ABCDE

There are several familiar calls in this year's SOLP Top Ten, and a few new ones. AF1T in FN43 is the winner this time. He bested neighbor WB1GQR by utilizing the microwave bands to get the mults and high-point QSOs in spite of the poor conditions. Dale made one Light QSO (on 478 THz), and his highlight was working W2EA (FN21) on 5 GHz and 10 GHz via rain scatter. K9MU improved from tenth place last year to capture the number three position this time. Thanks to rover activity, Larry, NØLL, from Kansas took the ninth spot.

Wait – who's missing from the SOLP Top Ten? K2DRH, the perennial winner! Bob had some major tower damage that could not be repaired in time for the contest, though he did submit a checklog. More details on his station status can be found in his soapbox at:

www.arrl.org/soapbox/view/9938

Top Ten - Single Operator, High Power

Call	*Scores*	*QSOs*	*Mults*	*Bands*
K1RZ	157,435	480	185	ABCD9EFGHI
K1TEO	108,500	460	155	ABCD9FG
WØUC	79,051	337	161	ABCD9EFGHI
VA3ELE	56,448	221	126	ABCD9EFGHIJ
K3TUF	41,216	207	112	ABCD9EGHI
K1KG	30,705	193	89	ABCD9EFGHI
K1TR	30,685	250	85	ABCDE
N4QWZ	28,971	179	111	ABCD9E
WZ1V	28,530	222	90	ABCDE
W3IP	27,390	218	83	ABCD9EFI

Dave, K1RZ in FM19jh, took home the bacon in the SOHP category this year. An abundance of rover activity kept him busy in spite of the rain in his area. Other than a handful of meteor scatter contacts, most of his QSOs were essentially local. Last year's winner, Jeff, K1TEO, took second place and was the only other single op with a score over 100K. His fine antenna farm was a victim of a

microburst in mid-May, so he cobbled together some makeshift antennas to get on to the air. WØUC in EN44 took advantage of extensive rover activity to take third place. VA3ELE and K3TUF came in 4th and 5th respectively.

Top Ten, Single Operator, 3 Band

Call	*Scores*	*QSOs*	*Mults*	*Bands*
KO9A	14,773	167	79	ABD
KG6IYN	9,792	152	51	ABD
K3SFX	5,250	103	42	ABD
KA2BPP	4,158	89	42	ABD
N7IR	3,612	101	28	ABD
K2RMX	3,570	112	30	ABD
WA4GPM	2,376	58	36	ABD
N7RK	1,892	67	22	ABD
N3ALN	1,738	68	22	ABD
AF6SA	1,617	64	21	ABD

The Single Op-3 Band category continues to attract a number of participants. This is a low power category created primarily to cater to those with the HF + VHF transceivers which include 50, 144 and 432 MHz.

Jim, KO9A placed #1 again this year with his modest setup, setting a new Central Division record as a result. He utilized CW, SSB, FT8 and meteor scatter very successfully to accumulate some impressive grid totals. On 2-meters, he worked NDØB (EN07 – ND) at 670 miles and other long haul QSOs with WQØP (EM19 - KS) and W5LDA (EM15 – OK), all on meteor scatter. On 6-meters, he completed with stations in CO, TX, KS, OK and the eastern seaboard, all via meteors. An interesting observation is that he only had six contacts with rovers.

From Southern California, Bruce, KG6IYN took second place. Plenty of local activity kept him busy on all three bands. It looks like all his activity was on phone.

Top Ten - Single Operator Portable

Call	*Scores*	*QSOs*	*Mults*	*Bands*
W4DVE	8,525	196	31	ABCD9E
VE7FYC	1,040	38	20	ABCDE
VE2NCG	1,037	35	17	ABCD9E
WB2AMU	987	38	21	ABCD
AA6XA	784	42	14	ABCD
AG7NC	488	45	8	ABCD
N2YTF/P	468	22	12	BCD9E
K7ZOO	208	20	8	ABD
W7MTL	192	32	4	BD
AC2GJ	150	12	10	ABD

Participation in the Single Operator Portable category was down by 2 with a total of 21 entries this year. Poor weather conditions around the country likely contributed to that. In addition, with no enhanced propagation, running QRP can be frustrating, even from a great hilltop location.

W4DVE ran away with the win from his mountaintop QTH in CN85. Aided by the large turnout of Pacific Northwest VHF Society (PNWVHFS) members, and 53 rover QSOs, Dave made almost 200 QSOs on 6 bands. He has a very efficient setup – see his website: www.w4dve.com.

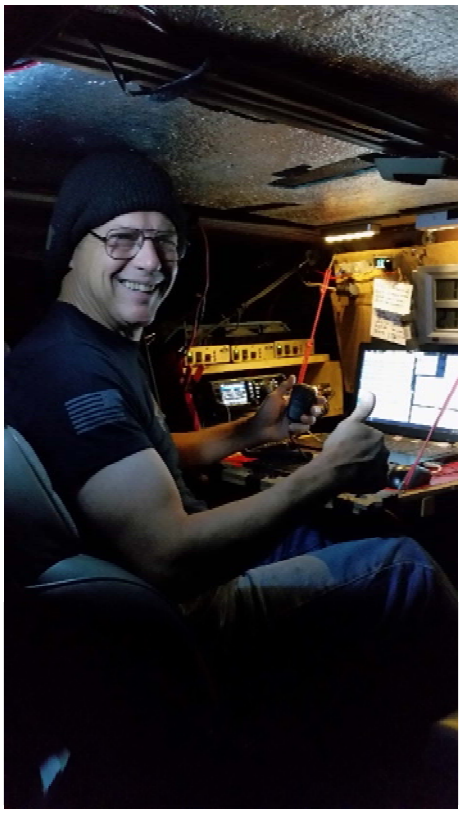
A pair of Canadians from opposite sides of the country, VE7FYC and VE2NCG placed 2nd and 3rd, separated by only 3 points.

We encourage more activity in SOP. Grab some gear, a battery. and some small simple antennas and go to your nearest hill or mountain top and have a blast!

Top Ten, Single Operator, FM-Only

Call	*Scores*	*QSOs*	*Mults*	*Bands*
KM4KMU	14,154	259	42	ABCD
W6IA	920	64	10	ABCD
WB9WOZ	847	58	11	ABCD
K1FJM/6 (N6ZE)	432	38	8	ABCD
W7AIT	266	28	7	ABCD
N9HRT	162	25	6	ABD
K7IMA	150	16	6	BCD
VA2DG	132	24	4	ABCD
KX1W	98	11	7	ABD
NC6Q	90(TIE)	10	6	BCD
KM6PHB	90(TIE)	12	6	ABD

There were 23 FM-Only entries in 2018, more than double the 11 entries in 2017. The 2017 winner, KM4KMU, smashed his old record from his beautiful location at Reddish Knob in FM08jl. John does a lot of prep for his operations. Gotta love his quote "FM is GREAT."



Here is John, KM4KMU, happy with the results after it is all over. (Photo courtesy, John Young, KM4KMU)

Last year's 2nd and 3rd place finishers swapped positions this year. This year W6IA in SCV is #2, and WB9WOZ in IL is #3. The remaining Top Ten operators are from various other parts of the country.

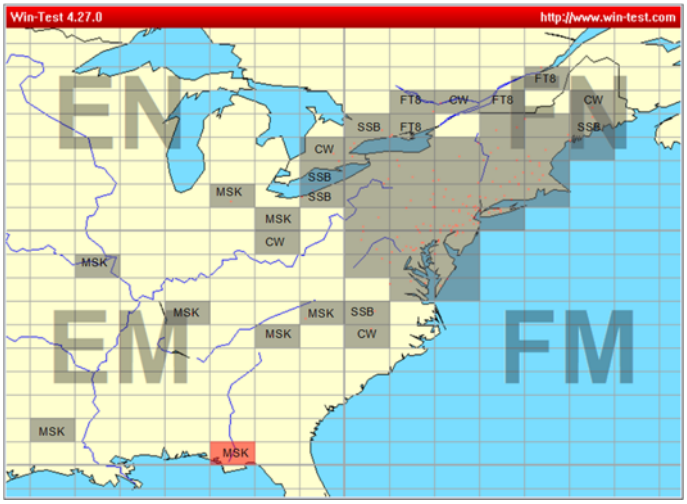
Multioperator Categories

The two Multioperator categories each had almost an identical number of entries as in 2017. Limited Multiop (LM) increased by 1 to 22, and Unlimited Multiop stayed the same – 15. Many of the players are the same as there are some established groups that continue the tradition annually.

Top Ten, Limited Multioperator

Call	*Scores*	*QSOs*	*Mults*	*Bands*
N2NT	93,900	503	150	ABCD
K2LIM	89,780	519	134	ABCD
AA4ZZ	80,618	414	173	ABCD
W3SO	69,432	423	132	ABCD
K5QE	43,420	223	167	ABCD
W2LV	38,000	335	95	ABCD
KØDAS	12,530	132	70	ABCD
W9RVG	10,640	108	76	ABCD
NE5BO	7,068	91	57	ABCD
K2BAR	4,884	121	33	ABCD

The top six finishers in the Limited Multioperator category were the same as last year, but finished in a different order. N2NT and his team emerged as the winner this time, advancing from the number two spot in 2017. They amassed fine grid totals on 6-meters and 2meters, helped by the use of the MSK144 mode. FT8 was used as well, but the team concluded that CW could have probably been used instead of FT8 on those particular QSOs.



The 2-meter grid map for N2NT from FN20, with modes indicated for the far away grids. (Courtesy John Golomb, N2NC)

In second place, 4K behind, was the K2LIM group with a fine effort to improve from the #3 position in 2017. This was the swan song for the K2LIM station which is being dismantled after many successful years. Ken, KA2LIM, the owner, will be participating as a rover in the future. Ken says: "*I want to thank all of you who have worked the K2LIM station over the last 8 years. As I have said before we have met many new folks, achieved goals that were never thought about or even on our 'radar screen', received awards not sought and always experimented with and added new antennas to our arsenal so we could work the 'weak one'. 73 from the K2LIM team.*"

Rounding out the top six, AA4ZZ was #3, up from #5 last year. Last year's winner W3SO was #4. Texas station K5QE went from #4 to #5, and W2LV repeated in the #6 position.

The K5QE team in Texas again used Marshall's effective EME array to scoop up 79 grids on 2-meters, and even worked a new state (AK) on 222 EME.

Top Ten - Unlimited Multioperator

Call	*Scores*	*QSOs*	*Mults*	*Bands*
W2SZ	275,315	814	205	ABCD9EFGHIJP
W2EA	143,736	602	159	ABCD9EFGHI
WQØP	61,204	279	143	ABCD9E
W4NH	50,794	304	109	ABCDEFHI
N8ZM	38,735	252	127	ABCD9E
WE1P	25,650	215	90	ABCD9E
W1XM	14.352	192	52	ABCD9E
WS9V	4,698	87	54	A
W3RFC	4,522	86	38	ABCD9E
W3ARO	4,452	103	42	ABD

Poor microwave conditions really bit into the scores of the perennial Unlimited Multiop powerhouses W2SZ and W2EA. Each repeated their respective #1 and #2 positions, albeit with much lower scores. The W2SZ crew had to QRT early to start taking down dishes and antennas due to a nasty weather front on the way. Their microwave numbers were way down from last year.

The W2EA South Jersey Mountain Toppers team, operating from High Knob in FN21kh commented they had four weather conditions "Wet, Wet, Wet, and Very Wet".

The WQØP group from KS placed 3rd this year, up from 5th in 2017, with a huge increase in their score, setting a new Midwest Division record in the process. Aggressive use of meteor scatter mode on both 50 and 144, plus a plethora of Rover activity (137 of their 279 QSOs were with Rovers) and the addition of 902 MHz all contributed to the increase.

Many believe the weekend is all about the picture and it is! The W2EA (#2 Unlimited Multiop) crew L to R: W2SJ, KB3SIG, K2WB, N3RG, W2TAG, N3AVT, KB1JEY, K3EGE, N2UNI, KD2MPC, KA3WXV, KD2DPV and KE2D. W2MC is not shown, he came up on Monday to help take down. (Photo courtesy PackRats "Cheese Bits" Newsletter, November 2018)

The Rovers - Saviors of the Weekend!

Admittedly, I am partial to rovers having done a few rover operations myself in the past. Especially out in "Flyover" country they are the lifeblood of fixed station operating. There are large expanses of land reasonably close to the populous areas where very few people, much less VHF ham radio operators reside, and the rovers are the only source of QSOs and multipliers available. Putting together a 3- or 4-band rover is relatively easy. Some stations carry antennas and set them up when they get to a desired location, while others mount the antennas on the roof of their vehicles. Even in the more densely populated areas the country, the rovers provide scores of QSOs and multipliers. It's pretty cool when a rover hits a new grid to hear the flurry of stations come out of the woodwork!

Top Ten - Classic Rover

Call	*Scores*	*QSOs*	*Mults*	*Grids*
KF2MR/R	63,602	312	98	4
VE3OIL/R	46,835	224	95	8
NF2RS/R	44,166	325	102	8
N7GP/R	24,067	382	41	7
N6MTS/R	21,586	270	43	6
KØDI/R	21,576	212	58	8
W5VY/R	21,505	154	85	6
AG4V/R	20,349	174	63	6
W3ICC/R	16.695	187	53	7
KT5TE/R	13,020	290	30	6

The Classic Rover category basically allows one or two operators to use up to legal-limit power on all bands. The "Classic" designation alludes to pretty much the original Rover class that was implemented in the late 1980s, with the main restriction being that there is a 100-QSO limit with another rover station.

Jarred, KF2MR/R moved to the top position this year after placing 4th last year. Activating all ten bands (50 MHz - 10 GHz) from four grids by himself kept him quite busy and he had some nice surprises along the way, with several 10-band QSOs, including VE3OIL/R, the second-place finisher.

Last year's Limited Rover winner, NF2RS/R, placed 3rd Classic Rover this year using only the lower four bands.

N7GP/R worked lots of Arizona Outlaws members in his 5-band, 7-grid rove through Arizona. All VHFers will remember Tom, whose old call was WA8WZG. He recently moved from OH to AZ and continues to exercise his VHF prowess from the great Southwest.

Just over 1K points separated the next four stations. N6MTS/R was number 5, operating from 6 grids in central California. Ten points behind in 6th place was KØDI/R, also from California, operating from 8 grids. And in 7th place, only 71 more points back was W5VY/R operating in the Delta Division and just edging out AG4V/R who was also in the Delta Division.

One of the rewards for operating as a rover is the wonderful views you get to experience. This photo of KF2MR/R was taken in FN13 on Saturday evening as he lined up to the Toronto area. (Photo courtesy Jarred Jackson, KF2MR)

Top Ten, Limited Rover

Call	*Scores*	*QSOs*	*Mults*	*Grids*
ACØRA/R	121,264	932	88	13
K2EZ/R	42,536	295	104	22
WW7D/R	33,440	559	44	10
KJ2G/R	20,928	234	64	7
WB5IDY/R	12,960	288	30	6
AE5P/R	12,570	280	30	6
N6RH/R	12,450	278	30	6
KØBBC/R	12,215	235	35	7
W1RGA/R	9,947	148	49	8
K7BDB/R	8,811	203	33	6

Wyatt, ACØRA/R, did a lot of planning and placed #1 in the Limited Rover category, setting a new overall record. Traversing 13 grids, he was able to garner just under 600 QSOs with 13 other rovers along the way. Judicious use of grid circling with other rovers at a few convergence points maximized the contacts, while also making himself available to many fixed stations enroute to the grid corners.

Activating 22 grids driving from Eastern Pennsylvania to Arkansas garnered perennial contender Andrea, K2EZ/R a second-place finish this year.

From the Pacific Northwest, WW7D/R put on 10 grids in Western Washington and took advantage of the heavy participation from the PNWVHFS membership to place 3rd.

Fourth place went to KJ2G/R. Three stations from East Texas; WB5IDY/R (5th place), AE5P/R (6th place), and N6RH/R (7th place) finished with close scores, roving in tandem with Classic Rover, KT5TE/R.

Top Ten, Unlimited Rover

Call	*Scores*	*QSOs*	*Mults*	*Grids*
NØLD/R	117,824	545	112	16
K5SRT/R	109,610	502	113	16
VE3SMA/R	49,880	259	86	6
N2SLN/R	31,047	293	79	8
K6MI/R	24,300	298	45	6
KCØSKM/R	16,665	211	55	8
KD5IKG/R	11,340	174	42	6
N6JET/R	8,736	131	39	4
KJ1K/R	1,840	33	23	2
K7ATN/R	1,148	58	14	2

NØLD/R and K5SRT/R drove through Kansas and Northern Oklahoma on a well-coordinated trip to maximize points while providing the local fixed stations some good multipliers. Both activated 16 grids using 50-1296 MHz with NØLD/R edging out SRT for first place, setting a new overall record for the Unlimited Rover category. Their remarkable detailed story and photo gallery is available at www.arrl.org/soapbox/view/9950.

VE3SMA/R and N2SLN/R placed 3rd and 4th respectively, and from the left coast K6MI/R placed 5th.

In-depth Stories and Features

Be sure to read the following detailed discussions and blow-by-blow reports of the contest provided by several of the top stations; Single Op, Multiop, and Rovers. They give a detailed look at what the contest was like in their area and in their categories.

KG5UCA/R (Classic Rover, Ops: KG5UCA and K5TR) ready to head out from the K5TR QTH to 12 grids in Texas. (Photo courtesy Sara Beth Teel, W5DMB, ex-KG5UCA)

The NØLD/R machine at their starting spot in DM97xx, north of Dodge City, KS, competing with a large piece of irrigation equipment. (Photo courtesy Randy Wing, NØLD)

Affiliated Club Competition

There were 28 clubs competing in the Affiliated Club competition, up from 27 in 2017. Again, no clubs submitted enough to qualify for the Unlimited category. Twenty-four clubs had team efforts in the Medium category. The Mt. Airy VHF Radio Club repeated in the top position with the North East Weak Signal Group again claiming 2nd place. The Northern Lights Radio Society (MN), with almost double the entries from 2017, moved to the third position, up from #10 last year. The Pacific Northwest VHF Society had 46 entries to improve to 4th place this year, up from 9th in 2017.

There were four clubs competing in the Local category. Niagara Frontier Radiosport was number one, repeating their win from 2017. The Clovis Amateur Radio Pioneers from the Left Coast moved from the Medium category last year to place 2nd this year.

Affiliated Club Competition

Club	*Score*	*Entries*
Medium		
Mt Airy VHF Radio Club	513,913	18
North East Weak Signal Group	209,246	15
Northern Lights Radio Society	200,262	23
Pacific Northwest VHF Society	169,974	46
Potomac Valley Radio Club	168,451	25
Rochester VHF Group	131,319	16
Contest Club Ontario	104,826	7
Carolina DX Association	80,644	3
Yankee Clipper Contest Club	56,459	7
Arizona Outlaws Contest Club	48,498	17
Roadrunners Microwave Group	38,948	6
Northern California Contest Club	36,170	10
Tennessee Contest Group	28,992	3
Society of Midwest Contesters	25,690	9
Southern California Contest Club	20,380	10
Badger Contesters	16,505	4
New Mexico VHF Society	16,023	8
Michigan VHF-UHF Society	5,428	3
South Jersey Radio Assn	4,603	5
Grand Mesa Contesters of Colorado	4,018	4
Mad River Radio Club	3,735	3
Frankford Radio Club	1,523	3
Florida Contest Group	727	3
Minnesota Wireless Assn	338	5
Local		
Niagara Frontier Radiosport	44,826	3
Clovis Amateur Radio Pioneers	19,141	3
Bristol (TN) ARC	1,818	3
Ventura County Amateur Radio Society	450	3

Soapbox!

Don't miss the compilation of comments - see www.arrl.org/contests/soapbox for some great stories and photos.

Ideas Needed

Like it or not, FT8 is one of the most popular modes to take hold in many years. It is definitely here to stay. In addition, the other *WSJT-X* modes have definitely changed the way contacts are made in recent years. As mentioned before, currently there is not a good way to accurately determine how many FT8 and other digital QSOs are made. The current Cabrillo specifications do not require, and actually do not accommodate the various digital modes. To do so will not happen overnight as any changes to Cabrillo format specifications will take time, and have downstream implications to logging software developers and the log checking process. That being said, we would entertain any ideas on how to begin getting a good handle on the number of digital QSOs being made and which digital modes are being utilized. Feel free to contact me via e-mail and I will forward to the appropriate parties for review.

Summary

It is encouraging to see the jump in entries in spite of mediocre conditions. The 2018 running can be touted as a success in that respect. It is a pretty safe bet that September conditions will generally be poor, but without activity nothing happens! There have been some surprises in Septembers past and no reason to think it can't happen again. More and more of the modern transceivers include not only 6-meters, but also 2-meters and 70 cm. Transverters are readily available at very reasonable prices nowadays. Plus, the antennas are small! Get your HF buddies to try it out.

A big thank you to all who make these contests possible, especially you – the entrant. Without you, the contest wouldn't exist. CU in the 2019 running!

73, Gator, N5RZ

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The Story from N2NT (#1 Limited Multioperator)

By Andy Blank, N2NT, reprinted with permission from October 2018 Pack Rats Cheese Bits Newsletter

N2NT was operated by Packrats N2NC and WW2Y. They did most of the operating with a few short stints from N2NT. WW2Y did all the operating (with most antennas fixed west) from 23Z-04Z the first night as N2NT and N2NC had commitments to operate the North American CW Sprint on HF. There was little to no e-skip on 6 meters. All contacts beyond about 350 miles were worked via meteor scatter on MSK144. 2 meters had a little enhancement to the west from about 1700z-2200z Sunday. We had N8GLS EN91 and N8XA in EM89 answer our CQ, A little extended tropo is usually needed for us to work out that far west. During that time there was also significant FT8 activity on 2m. This was the first contest I can remember that had so much FT8 activity on 2m.

Most of the MSK144 was done during the peak morning hours. An exception was on 2m. We worked K5QE (EM31) and KF4FCO (EM70) during the last 2 hours of the contest. Both of these guys have pretty big QRO stations and the QSOs were completed in less than 10 minutes. It's surprising considering the time of day. Even stranger was we couldn't seem to get anything going on 6m MSK144 during the same time. Another highlight was working AA4ZZ on good old CW tropo on 222 & 432 at 2000z Sunday.

N1PRW – Single Op Portable – FT8 Experiment and Planning for future Portable Usage

By Alexander R Svirsky, N1PRW from 3830scores.com,

QRP operation in Andover, Mass at 130' ASL. Weather was overcast and 62F.

Yaesu FT-817ND - 12V gel-cell batteries - 1/2 λ 6m aluminum dipole, homemade - Elk 2M/440L5 portable log periodic antenna - Laptop running *Ubuntu* Linux and *WSJT-X* plus CAT and data cables and USB sound port adapter QRP kit at home with antennas mounted on the deck.

Unable to participate Saturday. All effort on Sunday. My first time ever using FT8. After the last contest I ordered some cables and adapters for the FT-817. I figured out how to put them together Sunday and made FT8 happen on the FT-817ND.

FT8 was interesting and maybe addicting. Once I had the software and the radio correctly configured the operation flow seemed to make sense. My first FT8 log ever was during the contest. The FT8 workflow of at least 90 seconds for a smooth un-flubbed QSO shows that this might be an inefficient way to work a band enhancement.

Circumstances prevented an outdoor/hilltop operation. For the best anyway as I am experimenting with how I might make a portable QRP FT8 station feasible. FT8 is sure hard on batteries. Running FSK drives the FT-817 at a nearly 50% duty cycle while calling CQ. I ground down a 12V gel cell in under four hours, then ground down the next one even faster. I get a bit worried that I'm pushing the FT-817 finals too hard.

To make FT8 feasible for portable use I need a laptop that will last eight hours on a charge and at least two gel cell batteries. That's going to be a much heavier station.

I spun around the dial a few times and heard virtually no phone CQs, other than W2SZ coming in strong. With no enhancements happening I'm not sure I'd have made more than a couple of Qs at all from my QTH if I'd stayed on phone. FT8 was fun, if passive. I watched the Pats game while ticking QSOs on the screen and adjusting bands. I'm not sure what to think of this yet. There's a certain thrill in working a pileup that FT8 cannot provide.

73, Alexander N1PRW

WQØP #3 Unlimited Multioperator
Operators: KØKAN WAØARM WQØP
QTH: EM19 – KS

By Greg Cerny, WQØP, from 3830scores.com

It was a very good September contest for us! Conditions were at least normal for most of the contest and then right at the end in the last hour we work stations to the north, WBØTEM EN12 144-222, WØGHZ EN34 144-222-432, KØSIX EN35 144-222-432, WØUC EN44 144-222-432.

There were many other great contacts and 222 continues to amaze even on FM! Murphy visited the 902 SSB/CW station, RX appears to not be working, but everyone heard us though. Made a couple 902 contacts on FM with locals and a rover. FT8 and MSK kept the 6m ops turning out contacts. This contest was more work with no 6 meter openings. Tnx to these rovers, K5SRT, NØLD, KBØZOM, KSØTRC, and NØMNG for giving us the score we ended up with! See you all next contest!

KO9A #1 Single Op, 3 Band
QTH: EN52xc – IL

By Jim Spence, KO9A, from 3830scores.com

6-meters: 5 element OP-DES Yagi @ 30'
2-meters: 5 element Yagi @ 25'
432 MHz: 8 element Yagi @ 25' (same boom as 2-meters)
Rig: TS-2000X (100W 50 MHz, 100W 144 MHz, 50W 432 MHz)

First contest with the upgraded antennas. I came to the realization a couple of years ago that if I had any hope of ever finishing FFMA that I needed to upgrade my 6m station. Had been thinking about what/how to upgrade for a while and finally got it done this Summer. Upgraded 6m in May right before the great Es season we had and finally got around to getting the 2/432 antenna up earlier this week. Very happy with the results as all #s were up across the board vs. last year except for 432 QSOs. Local activity was definitely lower than normal but I was still able to boost the score compared to last year by getting more grids into the log on all bands. Fingers were crossed all weekend as I never had time the week prior to properly test out the 2/432 antenna, but thankfully it worked as expected with no gremlins. 6m had both excellent tropo to the north virtually the entire contest along with excellent meteors. FT8 contest mode horrors were reduced vs. prior contests but I still saw folks struggling on occasion to work casual ops. The situation definitely seems to be improving, but will be looking forward to when there is a true fix for this chaos in software. Best DX was W9RM via meteors at ~1080 miles. 2m had the same excellent tropo to the north for most of the contest and had decent meteors Sunday AM. Was happy to pick up a few random QSOs/grids on FT8 as well. I hope more stations get active on FT8 on 2m & up in future contests! Was happy to work WQØP for an all time new grid via meteors...had tried and failed to work him on the old antenna system in past contests and meteor showers, so was happy to get it done pretty easily this time. Best DX was NDØB via meteors at ~670 miles. 432 was enhanced to the north and northwest for much of Sunday. Best DX was N8ZM via tropo at ~250 miles for a new grid. Took a little while to catch a tropo peak but was certainly worth the wait! Fun to listen to some of the local ops whine about lack of conditions and lack of activity. With a single radio, I always felt busy...seemed there was always someone to chase via 6m meteors or 2m meteors or tropo (working the EN67 gang on both 6/2 was a nice surprise!) or rovers arriving in new grids, casual ops appearing on FT8, etc. Next upgrade step is to go SO2R...definitely limited here with no band scope and only 1 Rx at a time. Maybe next year? 73 Jim KO9A

K1RZ #1 Single Op, High Power
QTH: FM19jh – MD

By Dave Petke, K1RZ, reprinted with permission from October 2018 Pack Rats Cheese Bits Newsletter

The ARRL September VHF contest is always good to operate. Regrettably there was a lot of rain to dampen conditions in my area. But there was a lot of stations on SSB, CW and FT8. Rovers were well represented by K2EZ/R, VE3SMA/R, W3ICC/R, WA3PTV/R, N2SLN/R, WB2SIH/R, KF2MR/R and KJ2G/R. Thanks folks for making so much happen for the rest of us fixed stations. 222 pre-amp went away early in the contest. Otherwise it was fairly uneventful. Hoping for some drier conditions in January. QRV 10 Bands. Thanks everyone for working me. All the best!

Regional Leaders

West Coast Region
(Pacific, Northwestern and Southwestern Divisions; Alberta, British Columbia and NT Sections)

N7GP/R	24,067	R
N6MTS/R	21,586	R
KØDI/R	21,576	R
KE7MSU/R	11,790	R
WW7D/R	33,440	RL
K7BDB/R	8,811	RL
NI6G/R	8,130	RL
N6GP/R	4,848	RL
K7JSG/R	4,082	RL
K6MI/R	24,300	RU
N6JET/R	8,736	RU
K7ATN/R	1,148	RU
AE6GE	17,697	SOHP
KE7SW	16,324	SOHP
N1RWY	16,320	SOHP
N7EPD	13,677	SOHP
K7YDL	8,388	SOHP
WZ8T	10,080	SOLP
KC6ZWT	9,184	SOLP
K2GMY	6,475	SOLP
N7QOZ	5,162	SOLP
WR6Z	4,500	SOLP
W4DVE	8,525	SOP
VE7FYC	1,040	SOP
AA6XA	784	SOP
AG7NC	488	SOP
K7ZOO	208	SOP
KG6IYN	9,792	SO3B
N7IR	3,612	SO3B
N7RK	1,892	SO3B
AF6SA	1,617	SO3B
W6KKO	1,420	SO3B
W6IA	920	SOFM
K1FJM/6 (N6ZE, op)	432	SOFM
W7AIT	266	SOFM
K7IMA	150	SOFM
NC6Q	90	SOFM
KM6PHB	90	SOFM
WW7LW	288	LM
W7DK	253	LM
W6YNQ	390	UM
KJ6KK	250	UM

Midwest Region
(Dakota, Midwest, Rocky Mountain and West Gulf Divisions; Manitoba and Saskatchewan Sections)

KT5TE/R	13,020	R
KCØP/R	9,842	R
KG5UCA/R	7,680	R
KK6MC/R	3,402	R
NØHZO/R	2,548	R
ACØRA/R	121,264	RL
WB5IDY/R	12,960	RL
AE5P/R	12,570	RL
N6RH/R	12,450	RL
KØBBC/R	12,215	RL
NØLD/R	117,824	RU
K5SRT/R	109,610	RU
KCØSKM/R	16,665	RU
KD5IKG/R	11,340	RU
WØZQ	23,463	SOHP
K5LLL	22,194	SOHP
KØSIX	15,120	SOHP
KFØM	12,474	SOHP
KØTPP	11,375	SOHP
NØLL	10,080	SOLP
K5TRA	4,250	SOLP
KV5TX	2,058	SOLP
WBØLJC	429	SOLP
KBØHNN	312	SOLP
NØJK	12	SOP
W5RST	8	SOP
KV5W	924	SO3B
N5EPA	646	SO3B
AE5B	513	SO3B
AAØAW	221	SO3B
KØCQ	154	SO3B
N5LUL	54	SOFM
NØSUW	48	SOFM
NRØT	8	SOFM
AEØEE	1	SOFM
K5QE	43,420	LM
KØDAS	12,530	LM
WØSTV	598	LM
K5LRW	81	LM
WQØP	61,204	UM
KC5MVZ	539	UM

Central Region
(Central and Great Lakes Divisions; Ontario East, Ontario North, Ontario South, and Greater Toronto Area Sections)

VE3OIL/R	46,835	R
K8JH/R	2,478	RL
AC8W/R	210	RL
VA3TO/R	108	RL
WD9HBF/R	88	RL
VE3SMA/R	49,880	RU
WØUC	79,051	SOHP
VA3ELE	56,448	SOHP
W9EWZ	8,845	SOHP
K9EA	6,804	SOHP
KB8U	4,930	SOHP
K9MU	33,152	SOLP
VE3DS	32,528	SOLP
W9GA	7,000	SOLP
WA9DU	1,410	SOLP
KOØZ	1,176	SOLP
VE3EG	44	SOP
AA8CH	20	SOP
KO9A	14,773	SO3B
W9ZB	522	SO3B
VE3SST	510	SO3B
N9OBB	352	SO3B
VE3IQZ	210	SO3B
WB9WOZ	847	SOFM
N9HRT	162	SOFM
WN8P	2	SOFM
W9RVG	10,640	LM
N8ZM	38,735	UM
WS9V	4,698	UM
N2BJ	3,706	UM

Southeast Region
(Delta, Roanoke and Southeastern Divisions)

W5VY/R	21,505	R
AG4V/R	20,349	R
W7IY/R	495	RL
KJ4ZYB/R	228	RL
W4PH/R	220	RL
KM4OZH/R	50	RL
W4POT	28	RL
N4QWZ	28,971	SOHP
W3IP	27,390	SOHP
KE8FD	24,130	SOHP
N4JQQ	8,004	SOHP
N3MK	1,638	SOHP
WA7TOF/4	3,000	SOLP
W4RAA	2,898	SOLP
K4FJW	1,400	SOLP
K5OMC	770	SOLP
WG4I	473	SOLP
WA4GPM	2,376	SO3B
WA4LDU	1,242	SO3B
KK4BZ	243	SO3B
N5SMQ	108	SO3B
K3YDX	48	SO3B
KM4KMU	14,154	SOFM
K4NRT	15	SOFM
AD4TK	12	SOFM
W4LAN	12	SOFM
K3TW	5	SOFM
AA4ZZ	80,618	LM
NE5BO	7,068	LM
WB4WXE	4,815	LM
WX4PC	736	LM
W4AQL	680	LM
W4NH	50,794	UM

Northeast Region
(New England, Hudson and Atlantic Divisions; Maritime and Quebec Sections)

KF2MR/R	63,602	R
NF2RS/R	44,166	R
W3ICC/R	16,695	R
K2TER/R	12,495	R
WA3PTV/R	10,373	R
K2EZ/R	42,536	RL
KJ2G/R	20,928	RL
W1RGA/R	9,947	RL
K1SIG/R	7,326	RL
KD2BKD/R	456	RL
N2SLN/R	31,047	RU
KJ1K/R	1,840	RU
K1RZ	157,435	SOHP
K1TEO	108,500	SOHP
K3TUF	41,216	SOHP
K1KG	30,705	SOHP
K1TR	30,685	SOHP

AF1T	72,390	SOLP
WB1GQR (W1SJ, op)	58,707	SOLP
N8RA	21,052	SOLP
WA3EOQ	17,775	SOLP
WB2JAY	15,576	SOLP
VE2NCG	1,037	SOP
WB2AMU	987	SOP
N2YTF/P	468	SOP
AC2GJ	150	SOP
KQ2RP	105	SOP
K3SFX	5,250	SO3B
KA2BPP	4,158	SO3B
K2RMX	3,570	SO3B
N3ALN	1,738	SO3B
KC2THQ	1,296	SO3B
VA2DG	132	SOFM
KX1W	98	SOFM
VE2HEW	12	SOFM
N2NT	93,900	LM
K2LIM	89,780	LM
W3SO	69,432	LM
W2LV	38,000	LM
K2BAR	4,884	LM
W2SZ	275,315	UM
W2EA	143,736	UM
WE1P	25,650	UM
W1XM	14,352	UM
W3RFC	4,522	UM

Division Winners

Classic Rover

Atlantic	KF2MR/R	63,602
Dakota	KCØP/R	9,842
Delta	W5VY/R	21,505
Hudson	WB2SIH/R	7,854
Midwest	KSØTRC/R	480
Northwestern	KE7MSU/R	11,790
Pacific	N6MTS/R	21,586
Rocky Mountain	KK6MC/R	3,402
Southwestern	N7GP/R	24,067
West Gulf	KT5TE/R	13,020
Canada	VE3OIL/R	46,835

Limited Rover

Atlantic	K2EZ/R	42,536
Central	WD9HBF/R	88
Dakota	ACØRA/R	121,264
Delta	WA4JA/R	20
Great Lakes	K8JH/R	2,478
Hudson	KD2BKD/R	456
Midwest	K9JK/R	2,912
New England	KJ2G/R	20,928
Northwestern	WW7D/R	33,440
Pacific	NI6G/R	8,130
Roanoke	W7IY/R	495
Rocky Mountain	WØAMT/R	1,340
Southeastern	W4POT/R	28
Southwestern	N6GP/R	4,848
West Gulf	WB5IDY/R	12,960
Canada	VE7AFZ/R	748

Unlimited Rover

Atlantic	N2SLN/R	31,047
Dakota	KCØSKM/R	16,665
Midwest	NØLD/R	117,824
New England	KJ1K/R	1,840
Northwestern	K7ATN/R	1,148
Pacific	K6MI/R	24,300
West Gulf	KD5IKG/R	11,340
Canada	VE3SMA/R	49,880

Single Operator, High Power

Atlantic	K1RZ	157,435
Central	WØUC	79,051
Dakota	WØZQ	23,463
Delta	N4QWZ	28,971
Great Lakes	KB8U	4,930
Hudson	W2BVH	11,505
Midwest	KFØM	12,474
New England	K1TEO	108,500
Northwestern	KE7SW	16,324
Pacific	AE6GE	17,697
Roanoke	W3IP	27,390
Rocky Mountain	W7QQ	5,248
Southeastern	KE8FD	24,130
Southwestern	N1RWY	16,320
West Gulf	K5LLL	22,194
Canada	VA3ELE	56,448

Single Operator, Low Power

Atlantic	WA3EOQ	17,775
Central	K9MU	33,152
Dakota	WBØLJC	429
Delta	K5OMC	770
Great Lakes	K8MR	819
Hudson	WB2JAY	15,576
Midwest	NØLL	10,080
New England	AF1T	72,390
Northwestern	WZ8T	10,080
Pacific	KC6ZWT	9,184
Roanoke	WA7TOF/4	3,000
Rocky Mountain	N7DBW	126
Southeastern	W4RAA	2,898

Southwestern	W6IT	3,190
West Gulf	K5TRA	4,250
Canada	VE3DS	32,528

Single Operator, Portable

Atlantic	AC2GJ	150
Great Lakes	AA8CH	20
Hudson	WB2AMU	987
Midwest	NØJK	12
New England	N1PRW	88
Northwestern	W4DVE	8,525
Pacific	AA6XA	784
Southwestern	K7ZOO	208
West Gulf	W5RST	8
Canada	VE7FYC	1,040

Single Operator, 3 Band

Atlantic	K3SFX	5,250
Central	KO9A	14,773
Dakota	AAØAW	221
Delta	KS4X	1
Great Lakes	K8AB	160
Hudson	KA2BPP	4,158
Midwest	KØCQ	154
New England	N1ZN	476
Northwestern	WB7FJG	1,404
Pacific	AF6SA	1,617
Roanoke	WA4LDU	1,242
Rocky Mountain	N5EPA	646
Southeastern	WA4GPM	2,376
Southwestern	KG6IYN	9,792
West Gulf	KV5W	924
Canada	VA2BN	646

Single Operator, FM Only

Central	WB9WOZ	847
Dakota	NØSUW	48
Delta	K4NRT	15
Great Lakes	WN8P	2
Hudson	KX1W	98
Northwestern	K7IMA	150
Pacific	W6IA	920
Roanoke	KM4KMU	14,154
Southeastern	K3TW	5
Southwestern	K1FJM/6 (N6ZE, op)	432
West Gulf	N5LUL	54

Limited Multioperator

Atlantic	K2LIM	89,780
Central	W9RVG	10,640
Dakota	WØSTV	598
Delta	NE5BO	7,068
Hudson	N2NT	93,900
Midwest	KØDAS	12,530
New England	NE1C	4,284
Northwestern	WW7LW	288
Roanoke	AA4ZZ	80,618
Rocky Mountain	K5LRW	81
Southeastern	WB4WXE	4,815
West Gulf	K5QE	43,420

Unlimited Multioperator

Atlantic	W2EA	143,736
Central	WS9V	4,698
Great Lakes	N8ZM	38,735
Hudson	WE1P	25,650
Midwest	WQØP	61,204
New England	W2SZ	275,315
Pacific	W6YNO	390
Roanoke	W4NH	50,794
Southwestern	KJ6KK	250
West Gulf	KC5MVZ	539

QSO/Mult Band Leaders by Category

Classic Rover

50 MHz QSOs

N7GP/R	106
NF2RS/R	101
KT5TE/R	72
KF2MR/R	52
N6MTS/R	51

50 MHz Mults

NF2RS/R	24
KE7MSU/R	13
VE3OIL/R	13
KF2MR/R	12
W5VY/R	12

144 MHz QSOs

NF2RS/R	116
N7GP/R	102
KE7MSU/R	75
KT5TE/R	74
KF2MR/R	64

144 MHz Mults

NF2RS/R	31
W5VY/R	23
VE3OIL/R	18
KF2MR/R	17
WB2SIH/R	16

222 MHz QSOs

KT5TE/R	72
NF2RS/R	53
N7GP/R	48
N6MTS/R	45
KF2MR/R	44

222 MHz Mults

NF2RS/R	20
W5VY/R	14
AG4V/R	12
KF2MR/R	12
VE3OIL/R	10
WB2SIH/R	10

432 MHz QSOs

N7GP/R	95
KT5TE/R	72
NF2RS/R	55
N6MTS/R	53
KF2MR/R	50

432 MHz Mults

NF2RS/R	19
W5VY/R	18
AG4V/R	11
KF2MR/R	11
WB2SIH/R	10

902 MHz QSOs

N6MTS/R	41
KF2MR/R	30
KØDI/R	23
VE3OIL/R	16
AG4V/R	13
KCØP/R	13

902 MHz Mults

KF2MR/R	11
AG4V/R	6
N6MTS/R	6
KØDI/R	5
VE3OIL/R	5
W5VY/R	5

1.2 GHz QSOs

KF2MR/R	33
N7GP/R	31
N6MTS/R	26
AG4V/R	18
KØDI/R	18

1.2 GHz Mults

KF2MR/R	11
AG4V/R	7
W5VY/R	7
KØDI/R	6
N6MTS/R	6

2.3 GHz QSOs

KF2MR/R	19
VE3OIL/R	16
W3ICC/R	10
K2TER/R	7
AG4V/R	4
W2HRY/R	4
WA3PTV/R	4

2.3 GHz Mults

KF2MR/R	7
K2TER/R	5
VE3OIL/R	5
W2HRY/R	4
W3ICC/R	4

3.4 GHz QSOs

KF2MR/R	11
K2TER/R	7
VE3OIL/R	7
WA3PTV/R	3
KØDI/R	1

3.4 GHz Mults

KF2MR/R	6
K2TER/R	5
VE3OIL/R	5
KØDI/R	1
WA3PTV/R	1

5.7 GHz QSOs

VE3OIL/R	8
KF2MR/R	4

5.7 GHz Mults

VE3OIL/R	4
KF2MR/R	3

10 GHz QSOs

VE3OIL/R	11
KF2MR/R	5
KCØP/R	1

10 GHz Mults

VE3OIL/R	5
KF2MR/R	4
KCØP/R	1

Light QSOs

VE3OIL/R	4

Light Mults

VE3OIL/R	4

Limited Rover

50 MHz QSOs

ACØRA/R	216
WW7D/R	145
K2EZ/R	90
WB5IDY/R	72
AE5P/R	71

50 MHz Mults

K2EZ/R	26
K8JH/R	23
ACØRA/R	20
K5ND/R	15
KJ2G/R	14

144 MHz QSOs

ACØRA/R	270
WW7D/R	213
K2EZ/R	91
K7BDB/R	82
KJ2G/R	72
WB5IDY/R	72

144 MHz Mults

K2EZ/R	24
ACØRA/R	20
K5ND/R	18
KJ2G/R	16
K8JH/R	14

222 MHz QSOs

ACØRA/R	216
WW7D/R	83
WB5IDY/R	72
N6RH/R	69
AE5P/R	68

222 MHz Mults

ACØRA/R	17
K2EZ/R	16
KJ2G/R	13
KØBBC/R	7

WØZF/R	7
W1RGA/R	7

432 MHz QSOs	
ACØRA/R	230
WW7D/R	118
WB5IDY/R	72
AE5P/R	71
N6RH/R	68

432 MHz Mults	
ACØRA/R	18
K2EZ/R	16
KJ2G/R	14
K5ND/R	12
W1RGA/R	10

Unlimited Rover

50 MHz QSOs	
K5SRT/R	86
NØLD/R	85
N2SLN/R	79
K6MI/R	54
KCØSKM/R	48

50 MHz Mults	
K5SRT/R	17
N2SLN/R	17
NØLD/R	16
KCØSKM/R	12
VE3SMA/R	9

144 MHz QSOs	
N2SLN/R	114
NØLD/R	113
K5SRT/R	99
K6MI/R	70
KCØSKM/R	67

144 MHz Mults	
N2SLN/R	21
K5SRT/R	16
NØLD/R	16
VE3SMA/R	15
KCØSKM/R	11
KD5IKG/R	11

222 MHz QSOs	
NØLD/R	89
K5SRT/R	80
N2SLN/R	52
K6MI/R	47
KCØSKM/R	47

222 MHz Mults	
K5SRT/R	16
NØLD/R	16
N2SLN/R	15
KCØSKM/R	12
VE3SMA/R	12

432 MHz QSOs	
NØLD/R	98
K5SRT/R	86
K6MI/R	59
KCØSKM/R	51
N2SLN/R	48

432 MHz Mults	
N2SLN/R	18
K5SRT/R	16
NØLD/R	16
KCØSKM/R	12
VE3SMA/R	12

902 MHz QSOs	
NØLD/R	76
K5SRT/R	75
K6MI/R	38
VE3SMA/R	20
KD5IKG/R	8

902 MHz Mults	
K5SRT/R	16
NØLD/R	16
K6MI/R	6
VE3SMA/R	4
N6JET/R	3

1.2 GHz QSOs	
NØLD/R	84
K5SRT/R	76
K6MI/R	30
VE3SMA/R	18
N6JET/R	10

1.2 GHz Mults	
K5SRT/R	16
NØLD/R	16
K6MI/R	6
N6JET/R	4
VE3SMA/R	4

2.3 GHz QSOs	
VE3SMA/R	18
N6JET/R	4
KJ1K/R	2

2.3 GHz Mults	
VE3SMA/R	4
N6JET/R	2
KJ1K/R	1

3.4 GHz QSOs	
VE3SMA/R	9
KJ1K/R	3
N6JET/R	2

3.4 GHz Mults	
VE3SMA/R	4
KJ1K/R	2
N6JET/R	2

5.7 GHz QSOs	
VE3SMA/R	9
KJ1K/R	2

5.7 GHz Mults	
VE3SMA/R	4
KJ1K/R	1

10 GHz QSOs	
VE3SMA/R	13
KJ1K/R	2
N6JET/R	1

10 GHz Mults	
VE3SMA/R	4
KJ1K/R	1
N6JET/R	1

24 GHz QSOs	
VE3SMA/R	6

24 GHz Mults	
VE3SMA/R	4

Light QSOs	
VE3SMA/R	4

Light Mults	
VE3SMA/R	4

Single Operator, High Power

50 MHz QSOs	
K1TEO	182
WØUC	129
N3HBX	114
K1RZ	106
K3ISH	98

50 MHz Mults	
WØUC	64
KØTPP	56
K1TEO	46
N4QWZ	42
K3ISH	41

144 MHz QSOs	
K1RZ	134
K1TEO	110
N3HBX	96
KD7UO	92
K1HC	86

144 MHz Mults	
K1RZ	49
KAØRYT	34
WØUC	34
W9EWZ	33
KØTPP	32
NTØV	32

222 MHz QSOs	
K1TEO	74
K1RZ	63

WØUC	46
K1TR	41
WZ1V	34
222 MHz Mults	
K1TEO	27
K1RZ	26
WØUC	22
N4QWZ	21
VA3ELE	19
432 MHz QSOs	
K1RZ	84
WØUC	50
K1TEO	46
W3IP	46
N7EPD	43
432 MHz Mults	
K1RZ	30
K3TUF	23
WØUC	23
KE8FD	22
VA3ELE	20
902 MHz QSOs	
K1RZ	25
K1TEO	24
AE6GE	20
VA3ELE	16
WØUC	12
902 MHz Mults	
K1TEO	16
VA3ELE	11
K1RZ	10
W1GHZ	10
K3TUF	8
1.2 GHz QSOs	
K1RZ	30
VA3ELE	18
K3TUF	16
AE6GE	14
K1TR	14
N1RWY	14
1.2 GHz Mults	
K1RZ	13
VA3ELE	13
K3TUF	12
WZ1V	9
K1KG	8
KE8FD	8
W1GHZ	8
2.3 GHz QSOs	
K1RZ	22
K1TEO	14
VA3ELE	10
K1KG	8
K1IIG	5
WA3DRC	5
2.3 GHz Mults	
K1RZ	12
K1TEO	11
K1KG	7
VA3ELE	7
K1IIG	5
3.4 GHz QSOs	
K1TEO	10
K1RZ	8
VA3ELE	7
K1IIG	6
K1KG	6
K3TUF	6
3.4 GHz Mults	
K1TEO	9
K1IIG	6
K1RZ	6
K1KG	5
K3TUF	5
5.7 GHz QSOs	
K3TUF	5
VA3ELE	3
K1KG	2
W3SZ	2
K1RZ	1
WØUC	1
5.7 GHz Mults	
K3TUF	4
VA3ELE	3
K1KG	2
W3SZ	2
K1RZ	1
WØUC	1
10 GHz QSOs	
VA3ELE	10
K1RZ	7
K1IIG	4
K1KG	4
N3OC	3
10 GHz Mults	
K1IIG	4
K1KG	4
K1RZ	4
VA3ELE	4
K3TUF	2
WØGHZ	2
24 GHz QSOs	
VA3ELE	1
24 GHz Mults	
VA3ELE	1

Single Operator, Low Power

50 MHz QSOs	
WB1GQR (W1SJ, op)	150
KR1ST	104
N8RA	101
AF1T	83
K9MU	74
50 MHz Mults	
K9MU	47
NØLL	46
N8RA	30
VE3DS	30
KR1ST	25
WB1GQR (W1SJ, op)	25
144 MHz QSOs	
WB1GQR (W1SJ, op)	147
AF1T	110
WB2CUT	87
WZ8T	81
N8RA	68
144 MHz Mults	
WA3EOQ	26
WB1GQR (W1SJ, op)	26
K9MU	25
KR1ST	24
AF1T	22
VE3DS	22
222 MHz QSOs	
WB1GQR (W1SJ, op)	55
AF1T	49
K9MU	34
N8RA	29
WA3EOQ	29
222 MHz Mults	
WA3EOQ	19
K9MU	18
VE3DS	18
WB1GQR (W1SJ, op)	16
AF1T	15
432 MHz QSOs	
AF1T	72
WB1GQR (W1SJ, op)	61
WZ8T	50
K9MU	34
VE3DS	32
432 MHz Mults	
AF1T	19
K9MU	18
WA3EOQ	17
VE3DS	15
WB1GQR (W1SJ, op)	15
902 MHz QSOs	
AF1T	16

VE3DS	14
W4RAA	10
K9MU	9
W3EKT	9

902 MHz Mults

AF1T	11
VE3DS	10
WB1GQR (W1SJ, op)	6
K9MU	4
W3EKT	4
WB2JAY	4

1.2 GHz QSOs

AF1T	20
AC1J	11
VE3DS	11
W3EKT	10
WB2JAY	9

1.2 GHz Mults

AF1T	8
VE3DS	7
AC1J	5
KC6ZWT	4
W3EKT	4
WB1GQR (W1SJ, op)	4
WB2JAY	4

2.3 GHz QSOs

AF1T	6
KC6ZWT	4
VE3DS	4
WB1GQR (W1SJ, op)	4
W6IT	3
WB2JAY	3

2.3 GHz Mults

AF1T	4
VE3DS	4
WB1GQR (W1SJ, op)	4
KC6ZWT	3
K5TRA	2
W6IT	2
WB2JAY	2

3.4 GHz QSOs

AF1T	5
W6IT	3
WB1GQR (W1SJ, op)	3
WB2JAY	3
VE3DS	1
W3EKT	1

3.4 GHz Mults

AF1T	5
WB1GQR (W1SJ, op)	3
W6IT	2
WB2JAY	2
VE3DS	1
W3EKT	1

5.7 GHz QSOs

AF1T	3
W6IT	2
W3EKT	1

5.7 GHz Mults

AF1T	3
W3EKT	1
W6IT	1

10 GHz QSOs

AF1T	7
W3EKT	2
W6IT	2
K5TRA	1
W1RGA	1

10 GHz Mults

AF1T	7
K5TRA	1
W1RGA	1
W3EKT	1
W6IT	1

24 GHz QSOs

AF1T	1

24 GHz Mults

AF1T	1

Light QSOs

AF1T	1
WB3IGR	1

Light Mults

AF1T	1
WB3IGR	1

Single Operator Portable

50 MHz QSOs

W4DVE	40
WB2AMU	13
VE7FYC	7
AA6XA	6
AG7NC	6
N1PRW	6
N6LB	6

50 MHz Mults

W4DVE	8
WB2AMU	7
N6LB	6
AA6XA	4
N1PRW	4
VE7FYC	4

144 MHz QSOs

W4DVE	84
AG7NC	23
AA6XA	22
VE7FYC	18
W7MTL	16
WB2AMU	16

144 MHz Mults

VE7FYC	9
WB2AMU	9
W4DVE	8
VE2NCG	6
AA6XA	5

222 MHz QSOs

W4DVE	20
VE7FYC	6
VE2NCG	5
AA6XA	3
N2YTF/P	3

222 MHz Mults

W4DVE	6
AA6XA	2
N2YTF/P	2
VE2NCG	2
VE7FYC	2
WB2AMU	2

432 MHz QSOs

W4DVE	45
W7MTL	16
AG7NC	14
AA6XA	11
VE2NCG	7
WB2AMU	7

432 MHz Mults

W4DVE	5
N2YTF/P	4
VE7FYC	4
AA6XA	3
AC2GJ	3
K7ZOO	3
WB2AMU	3

902 MHz QSOs

VE2NCG	4
N2YTF/P	2
N6ZE/6	2
W4DVE	2
NØJK	1

902 MHz Mults

N2YTF/P	2
N6ZE/6	2
VE2NCG	2
W4DVE	2
NØJK	1

1.2 GHz QSOs

W4DVE	5
VE2NCG	3
N2YTF/P	2
VE7FYC	1

1.2 GHz Mults	
VE2NCG	2
W4DVE	2
N2YTF/P	1
VE7FYC	1

10 GHz QSOs	
VE3EG	2

10 GHz Mults	
VE3EG	2

Single Operator, 3 Band

50 MHz QSOs	
KO9A	94
K2RMX	57
KG6IYN	42
N3ALN	42
N3PLM	38
WA4GPM	38

50 MHz Mults	
KO9A	42
WA4GPM	22
KV5W	20
KG6IYN	17
WA4LDU	17

144 MHz QSOs	
KG6IYN	70
KO9A	53
K3SFX	51
K2RMX	48
KA2BPP	44

144 MHz Mults	
KO9A	26
KA2BPP	24
K3SFX	20
KG6IYN	19
N2MKT	15

222 MHz QSOs	
KK6ZIZ	3
K2TV	2

432 MHz QSOs	
KG6IYN	40
N7IR	28
K3SFX	22
KO9A	20
N7RK	19
N7VD	19

432 MHz Mults	
KG6IYN	15
KO9A	11
K3SFX	10
N7IR	8
AI6V	7
N7RK	7
WA4GPM	7

Single Operator, FM Only

50 MHz QSOs	
KM4KMU	35
K1FJM/6 (N6ZE, op)	8
WB9WOZ	8
W6IA	6
N9HRT	4

50 MHz Mults	
KM4KMU	7
KM6PHB	2
N9HRT	2
WB9WOZ	2
AD4TJ	1
K1FJM/6 (N6ZE, op)	1
KI6KRT	1
KX1W	1
N5LUL	1
VA2DG	1
W4LAN	1
W6IA	1
W7AIT	1

144 MHz QSOs	
KM4KMU	135
WB9WOZ	31
W6IA	30
N9HRT	19
W7AIT	17

144 MHz Mults	
KM4KMU	19
N6LL	4
W6IA	4
K1FJM/6 (N6ZE, op)	3
K7IMA	3
KX1W	3
N1TEN	3
N9HRT	3
NC6Q	3
WB9WOZ	3

222 MHz QSOs	
KM4KMU	22
K1FJM/6 (N6ZE, op)	7
W6IA	7
K7IMA	4
W7AIT	4

222 MHz Mults	
KM4KMU	8
K1FJM/6 (N6ZE, op)	2
W7AIT	2
WB9WOZ	2
K4NRT	1
K7IMA	1
KI6KRT	1
N6LL	1
NC6Q	1
VA2DG	1
W6IA	1

432 MHz QSOs	
KM4KMU	67
W6IA	21
WB9WOZ	16
K1FJM/6 (N6ZE, op)	9
VA2DG	8

432 MHz Mults	
KM4KMU	8
W6IA	4
WB9WOZ	4
KX1W	3
N1TEN	3

902 MHz QSOs	
VA2DG	1

Limited Multioperator

50 MHz QSOs	
AA4ZZ	200
N2NT	190
W2LV	166
K2LIM	159
W3SO	150

50 MHz Mults	
AA4ZZ	78
K5QE	60
N2NT	49
W3SO	40
K2LIM	33
W2LV	33

144 MHz QSOs	
K2LIM	209
N2NT	190
W3SO	170
AA4ZZ	161
W2LV	104

144 MHz Mults	
K5QE	79
AA4ZZ	58
N2NT	51
W3SO	49
K2LIM	44

222 MHz QSOs	
K2LIM	71
N2NT	57
W2LV	30
W3SO	28
KØDAS	23

222 MHz Mults	
K2LIM	27
N2NT	24
AA4ZZ	17

W2LV	15
W3SO	13
W9RVG	13
432 MHz QSOs	
K2LIM	80
W3SO	75
N2NT	66
AA4ZZ	36
W2LV	35
432 MHz Mults	
K2LIM	30
W3SO	30
N2NT	26
AA4ZZ	20
W2LV	17
Unlimited Multioperator	
50 MHz QSOs	
W2SZ	280
W2EA	250
W4NH	128
N8ZM	118
WQØP	100
50 MHz Mults	
WQØP	63
N8ZM	56
WS9V	54
W4NH	45
W2SZ	40
144 MHz QSOs	
W2SZ	221
W2EA	165
WE1P	107
W4NH	84
N8ZM	83
144 MHz Mults	
N8ZM	41
W2SZ	40
WE1P	35
W2EA	33
W4NH	29
222 MHz QSOs	
W2SZ	78
W2EA	57
WQØP	35
N8ZM	27
WE1P	26
222 MHz Mults	
W2SZ	23
W2EA	22
WQØP	18
N8ZM	15
WE1P	15
432 MHz QSOs	
W2SZ	96
W2EA	53
WQØP	48
W4NH	38
W1XM	30
432 MHz Mults	
W2SZ	24
W2EA	20
WQØP	20
W4NH	18
WE1P	16
902 MHz QSOs	
W2SZ	29
W2EA	15
WQØP	9
WE1P	7
W1XM	5
902 MHz Mults	
W2SZ	17
W2EA	8
WE1P	5
W1XM	4
WQØP	4
1.2 GHz QSOs	
W2SZ	33
W2EA	24
WQØP	24
W1XM	11
N2BJ	4
W3RFC	4
W4NH	4
1.2 GHz Mults	
W2SZ	17
W2EA	15
WQØP	10
W1XM	5
W4NH	3
WE1P	3
2.3 GHz QSOs	
W2SZ	20
W4NH	16
W2EA	14
WA1TE	1
2.3 GHz Mults	
W2SZ	11
W2EA	8
W1XM	1
W4NH	1
WA1TE	1
3.4 GHz QSOs	
W2SZ	20
W2EA	9
3.4 GHz Mults	
W2SZ	11
W2EA	6
5.7 GHz QSOs	
W4NH	15
W2SZ	13
W2EA	7
5.7 GHz Mults	
W2SZ	9
W2EA	6
W4NH	1
10 GHz QSOs	
W2SZ	13
W2EA	8
W4NH	2
10 GHz Mults	
W2EA	8
W2SZ	8
W4NH	1
24 GHz QSOs	
W2SZ	7
24 GHz Mults	
W2SZ	4
Light QSOs	
W2SZ	4
Light Mults	
W2SZ	1